A photograph of several children swinging happily on a yellow and green swing set. The children are of South Asian descent. In the background, other children and adults are visible, along with some simple buildings and a clear sky. The overall scene is bright and cheerful.

*Children at the Industrial Training Institute campus in Nagapattinam where play equipment was provided by Chennai-based Tivara, with support from USAID.*

# LIFE AFTER THE TSUNAMI

Text by A. VENKATA NARAYANA  
Photographs by HEMANT BHATNAGAR

One year after the tsunami, life along the Tamil Nadu coast has improved, thanks to the initiatives of local, national and global aid organizations and government agencies.

**K** Revathi stitches and binds books all day long in a fishing hamlet in Tamil Nadu, one of the hundreds of places ravaged by the December 26, 2004, tsunami. She binds the books and cuts the edges with a machine that she bought for Rs. 25,000—out of the aid she received for tsunami victims—and takes orders from a government school in Akkarapettai. The Rs. 2,000 she earns every month helps Revathi educate her two children and supplements the income of her fisherman husband, especially when the catch is low or during months when fishing is banned.

Like Revathi, other women are also finding ways to help their families survive after the tsunami roared over the eastern seaboard, washing away houses, submerging farm fields and killing more than 12,000 people according to the U.N. Development Program. The women weave cane baskets, bind books, make candles and stitch clothes—skills that they were taught in a few days by some of the volunteer groups that helped rehabilitate hundreds of thousands of homeless people.

Nearly a year after the tsunami struck on a Sunday morning, government agencies and



hundreds of volunteer groups are rebuilding houses and schools, cleaning up irrigation ponds, repairing fishing boats and imparting vocational training to help people go on with their lives in one of the largest relief operations in India's history. Private American citizens, corporations and the U.S. government contributed to India's response. The event, though catastrophic, forged people-to-people ties between Americans and Indians to quicken the pace of recovery.

In the coastal district of Nagapattinam, which bore the brunt of the tsunami and accounted for the largest number of Indian deaths, volunteers of Project Concern International helped rehabilitate 875 families in four villages with a grant of \$440,000 given by the United States Agency for International Development, or USAID. Organizations such as CARE, Catholic Relief Services (CRS), GOAL, Food for the Hungry, the Agency for

## Young American Volunteer

By LAUREN ELYSE PRINCE

**T**he tsunami that struck South Asia the day after Christmas affected all Americans temporarily; however, it changed me permanently. Like countless people all over the world, my family and I were glued to the television in the hours after we first heard of this catastrophe. The thought of hundreds of thousands of people being wiped out within minutes was impossible for me to comprehend.

The name Chennai, which was frequently mentioned in news coverage, took on special meaning for my family. My mother had worked with a woman, Becky Douglas from Atlanta, Georgia, who had recently founded an orphanage in Chennai. It suddenly struck my mother that the orphanage was right in the path of the tsunami. We learned from Becky by phone that all of the children in the orphanage, which was only a few hundred meters from the beach, were safe, but that nearly all the children in a nearby orphanage had been killed. We also learned that the economy of the fishing villages along the beach had been destroyed. When we asked what would be the best way of helping these people, Becky replied that the long-term welfare of the people would depend on their ability to return to the sea and fish. How much would that cost? Becky said that \$11,000 would repair or replace the boats and nets of a village of 500 people. When I got home from our holiday break I spoke with our headmaster and asked his permission to have a fundraising drive at The Bullis School [a private



Courtesy Prince family

*Lauren Elyse (Ellie) Prince volunteers her time and energy to the tsunami victims. Here Ellie spends time with children from the Rising Star Outreach Orphanage in Chennai.*

*Left: K. Revathi (right in the photograph), leader of a self-help group in Akkarapettai, teaches basketweaving.*

*Below: Zarina (left) and Nasima stitching cushion covers at a temporary rehabilitation shelter in Nagapattinam, where alternative livelihood skills training is carried out with USAID support.*



Technical Cooperation and Development (ACTED) and Chennai-based Exnora have used USAID funds to start long- and medium-term rehabilitation programs. They have built temporary shelters for the displaced families, repaired fishing boats, improved sanitation and water supply in the villages, generated jobs through cash-for-work programs and improved awareness about health and hygiene.

Fishing and farming, the two main

*Right: Children in a classroom at a makeshift school in Nagapattinam.*



occupations in coastal area, are resuming. Meanwhile, women and the unemployed are being given new opportunities to earn.

Some volunteer organizations like the CRS are working on long-term rehabilitation and improvement of people's lives. CARE, which aims at making sure no child misses out on an education, has begun enrolling children who never went to school.

ACTED used a U.S. grant of \$300,000 to enable 150 self-help groups to provide small loans to 2,280 families to restart businesses.

The self-help movement—usually centered around women—is seen as a way of improving the economic status of the rural population. The success of the groups is often due to the money-saving habits of women, who have a reputation for creditworthiness. Nagapattinam district alone has some 6,350 self-help groups. “Banks and other financial institutions can help them by advancing cheap loans,” says J. Radhakrishnan, the Nagapattinam district collector.

Immediately after the tsunami, fishermen lost not only their boats and nets but also the will to go back to the sea. The women in these fishing communities looked for new and alternative ways to generate income. But they had no other skills to fall back on. CRS quickly realized that lack of skills and work experience put women and girls at a special risk of being trafficked, burdened with debt or subjected to other kinds of exploitation. It started training programs for 100 women in five villages. A core group of 50 women were selected for financial management training in early May.

Mala Nagaraj, 20, who lost her father in the tsunami, leads one self-help group that trains women in various skills. Her mother sells fish, but Mala helps supplement that by selling pickles in Nagapattinam—she learned the skill through the training program—and today earns Rs. 2,500 to Rs. 3,000 per month, depending on the orders and the season.

“I was really impressed. These women have so much to do every day, looking after their homes, collecting water, going to the fields. They managed their time well enough to do all of that and something extra as well,” says Mira Gratier, program coordinator of ACTED.

Former U.S. President Bill Clinton, who toured Nagapattinam as a U.N. special envoy to the tsunami affected countries,

school in a suburb of Washington, D.C.]. He gave his consent, and three days later I gave a presentation to the entire student body to kick off the campaign. On the first day of the campaign—and to our great surprise—we raised more than \$4,000. By the end of the weekend we raised more than double the amount of our goal, and to date we have raised more than \$100,000. One hundred percent of this money has gone directly to India.

Eight of my classmates and I, along with our headmaster and several other adults, decided to spend our spring break in India, with each of us paying our own way. What we learned in India far exceeded what we had learned from raising money.

We spent a week in Chennai, with half of our time devoted to the orphanage and school that had first gotten our attention, and the other half split among three colonies for people afflicted with leprosy. Working in the orphanage was easy for all of us, because the children were all adorable. Leaving them after such a short stay turned out to be quite difficult, and all of us cried as we left. Our work in the leprosy colonies was much more difficult, but in the end it was probably the most valuable. None of us had ever been around a patient with the disease. At first, we were afraid even to go near the residents of the colony, much less touch them. But our fears quickly vanished as we saw how excited these people were to have outsiders come to them in a spirit of love and help. We helped them with community needs, such as planting banana trees to assist their efforts to become self-sufficient, but the best part was helping them individually. The highlight of my trip, and one of the most moving things of my life, was combing and braiding the hair of a woman who had lost both hands and both feet to leprosy. Until then, I never appreciated how much some simple gestures of love can do for someone else. □



*Top: A woman cooks food at a shelter constructed by Project Concern International with USAID support in Thirumullavas in Nagapattinam district. Above and facing page: Fishermen repair their nets and collect the day's catch at Nagapattinam's busy fish market, where life is returning to normal.*

praised the methods of economic rehabilitation that the Tamil Nadu government has adopted. He had a special word of praise for the collector, Radhakrishnan, who led the district administration's rescue and relief operations. "I am very impressed

with the attitude of the district collector—a young man's attitude," Clinton said.

"We knew there would be much more to do than just replace the lost boats, nets and houses, so we started to work with all the villagers, especially the women," Radhakrishnan says.

Now some women are beginning to plan the future—a future in which they can carry more responsibility for the income of their families and raise their social status in the process.

In Devanampattinam, in Cuddalore

## The American Response

Ordinary citizens, the government, businesses and charities in the United States responded generously to the Asian disaster, offering unprecedented support for the tsunami victims. Americans privately donated \$1 billion to relief agencies within months. The U.S. government authorized \$630 million to recovery and reconstruction, not including the value of humanitarian assistance from the American military. Immediate relief and rehabilitation have been provided in the most affected countries, such as India, Indonesia, Sri Lanka and Thailand.

President George W. Bush appointed former Presidents George H.W. Bush and Bill Clinton to investigate the needs and head the campaign to promote the humanitarian effort.

The response from the corporate world was instant. Among the first donors were ChevronTexaco Corp, General Mills Inc., Levi Strauss & Co., Abbott Laboratories, General Electric, Proctor and Gamble, Johnson & Johnson, Pfizer, Coca-Cola, Exxon Mobil, Citigroup, Wal-Mart, Amazon.com, Nike, American Express, PepsiCo, Cisco Systems and Federal Express. Also, several American foundations and charitable organizations, such as the Bill & Melinda Gates Foundation, the Carnegie Foundation and the Global Business Dialogue acted quickly.

American celebrities including Hollywood stars Sandra Bullock and Leonardo DiCaprio and singer Willie Nelson raised funds. Global volunteer groups such as Catholic Relief Services, CARE, World Vision, Oxfam and Habitat for Humanity helped rebuild houses and aided the survivors through cash-for-work programs.

Ford India, working in partnership with the Confederation of Indian Industry, adopted 225 fishing families in Panaiyur Periya Kuppam village in Tamil Nadu's Kancheepuram district. The fishermen received 25 fiber boats fitted with outboard engines. A day-care center and a vocational training center were opened so that women could learn new skills.

The assistance from the United States and pledges of support from national and international organizations offer hope to millions of people trying to rebuild their lives. —A.V.N.



# Teamwork Is Key to Disaster Response

An Interview with J. RADHAKRISHNAN

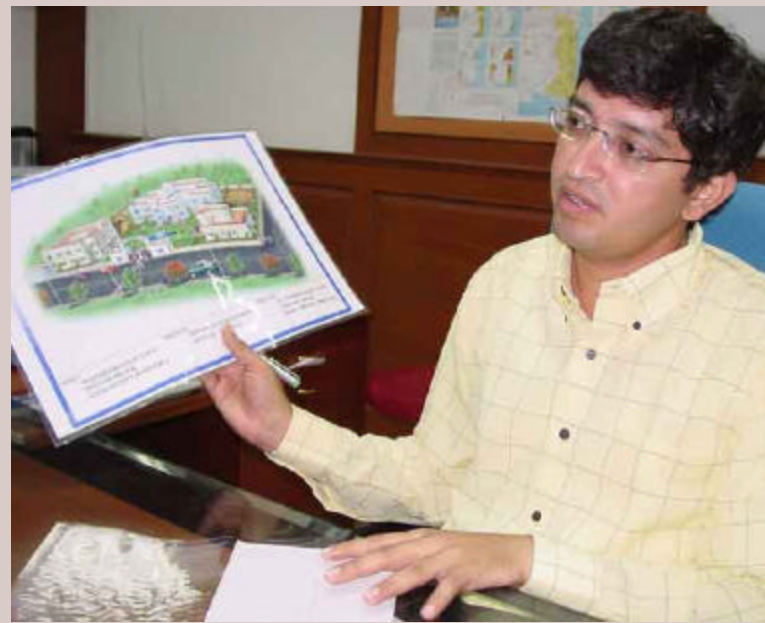
**J** Radhakrishnan, collector of Nagapattinam district, Tamil Nadu, is heading a massive humanitarian effort in the aftermath of the December 2004 tsunami. The 37-year-old administrator was transferred to Nagapattinam soon after the tsunami because of his experience in managing disasters.

He was one of the few officers to reach the devastated areas within hours, helping with relief materials, disposing of the dead and providing assistance to thousands of people. During a visit to Nagapattinam as a U.N. special envoy, former U.S. President Bill Clinton said he was "impressed with the attitude of the district collector," especially the innovative economic models he set up for women's self-help groups.

In June, Radhakrishnan traveled to the United States. He met with the U.S. Federal Emergency Management Agency (FEMA) and gave lectures in Washington, D.C., Seattle, Houston and Honolulu to discuss the finer points of disaster management. He also found time to talk with SPAN:

## How are the rehabilitation programs going in your district?

Nagapattinam is the worst-affected district in the tsunami tragedy. There was an extensive loss of life and property. We have adopted a three-pronged approach. First, NGOs in large numbers have stepped in and [are] doing outstanding work in a very concerted and complementary way. They are working with fishermen, farmers, orphans, providing them



*Above: J. Radhakrishnan, Nagapattinam collector, at his office. Right and far right: More than 17,300 permanent houses with earthquake-proof features are being constructed at 79 locations in Nagapattinam district alone; a two-storied building has come up and is ready to be occupied.*

with long-term rehabilitation programs. They are also addressing critical issues such as housing, health, sanitation and drinking water. Women, especially widows, are being trained in vocational skills so they can make a better living with their supplementary earnings.

Second, the government, in cooperation with NGOs, is engaged in building infrastructure such as roads, bridges, permanent schools and houses and fish-landing centers. Because of this, the fishermen have been able to resume their work within two to three months after the tragedy. Now fishing, to a large extent, has come back to normal levels.

The third, and the most important, approach is involving the community. In a rehabilitation effort of this magnitude, we cannot ignore people's views and sentiments and their roles.

**//** The Pondicherry Multipurpose Social Service Society is offering a host of opportunities to learn computer applications which were not available to the local youth earlier. Because of the Internet facility we are connected to the rest of the world, which helps our fabric designers learn new fashion trends. **//**

—F. Christopher, chief coordinator, PMSSS



Even today, thousands of families are settled in temporary shelters where life seems to be dismal. What's your timeline to shift them to permanent houses where living conditions are expected to be better?

We have acquired more than 300 hectares of land and are building houses for more than 2,700 families this year. These are at various stages of construction, and the project is going on at a greater pace. By the first anniversary of this tragedy we plan to shift some families to permanent houses.

I am glad to note that 40 NGOs are working on the housing project in Akkarapettai, the most devastated hamlet in Nagapattinam district, where the loss of life and property was immense. With private and public partnership we plan to construct 17,361 permanent houses in 79 locations.

#### What were your experiences during your U.S. tour?

I have learned a lot from the U.S. officials about disaster management. We exchanged notes on how to respond to a disaster: how to mobilize the necessary supplies, how to move the affected people to safer areas, how to deal with the injured, how to dispose of the dead, how to control water-borne diseases, etc. I had a chance to explain our practices and share theirs in an emergency situation. U.S. officials like our team approach.

There has been a general feeling among farmers and other sections of

society who lost their livelihoods that they have been neglected in the rehabilitation program as compared to fishermen. How do you respond to this?

What the fishermen received in the form of boats, nets and temporary shelters is visible, whereas in the case of farmers and agricultural laborers it is not. As a matter of fact, all those affected were covered under one rehabilitation program or the other. Farmers were paid Rs. 12,000 per hectare for sand removal and the salt pan cultivators also received a good package. Besides, seeds to plant kharif were supplied free of cost. Also, agricultural laborers who accepted skills training got a better means of earning a livelihood.

#### What are the challenges ahead and how should such tragedies be addressed in the future?

If the entire local community is involved in the effort, tragedies of this kind could be tackled with tremendous success.

Natural calamities of this magnitude require global support. I would like to underscore that globalization is not only for economies but for tragedies as well. Through the U.S. International City and County Managers Association's "City Link" program, we can forge partnerships and learn from each other about various approaches to mitigate the problems. Each disaster is unique and, therefore, each response is unique. I feel that the team approach is the right approach. Therefore, it should be institutionalized. □



Courtesy Nagapattinam Collectorate

district, the Pondicherry Multipurpose Social Service Society, in partnership with CRS and USAID, also trained 165 girls and 50 boys in computer skills, such as how to use Microsoft Word, Excel, Internet and other software.

ACTED launched micro financing schemes, giving grants of Rs. 50,000 to some 150 groups. Each group manages a pot of funds. Then the group can make small loans to individuals, who must pay back the revolving fund within 18 months. Most members are from deprived classes and include farm hands from villages further inland who otherwise depend upon fishing. The farms were inundated by the sea and the laborers have

no work. USAID funds helped the women buy goats and cattle to earn money by selling milk to cooperatives. K. Shanthi earns Rs. 50-60 a day through selling milk. "By involving women the entire family can benefit. It's called income generation. It's a livelihood program which is linked up with milk cooperatives for marketing," says Gratier.

M. Manjula, a mother of three and secretary of a self-help group that gives micro loans to its members, learned how to write accounts through the training given by a Madurai-based organization, Dhan Foundation. She is now able to supplement the income of her husband, a temple priest. "The availability of credit

in villages is almost non-existent, and for women it is impossible to raise a loan. Most of us depend on local moneylenders who charge heavy interest with unfavorable terms and conditions. However, the loans offered by self-help groups are soft and favorable. The terms are decided by us, not any external agency," she says. Loans are given for emergency medical needs, education and training.

The tsunami also badly affected farmers. Large swathes of land were flooded and the sea water ruined crops or turned the soil saline. Many people were without work or money. With U.S. assistance, GOAL helped sea salt producers remove sand and clay from evaporation pans

// When the Exnora team descended on our village, people were not receptive to their concept of environment and hygiene. But after awareness creation, especially among women and children, the concept was adopted by all members of my village. There is a long-term economic benefit and a need to keep the village clean and hygienic. //

—R. Subbarayan, president of Palaiya Palaiyam



Above: R. Subbarayan of Palaiya Palaiyam (second from left) distributing red and green buckets to women for separating inorganic and organic waste as part of the USAID-funded Exnora environment management project.

Left: Mira Gratier (second from left), program coordinator of ACTED, with K. Shanthi (left) and other women who received milk cows under the livelihood program sponsored by ACTED, with help from USAID.



ruined by the tsunami—restarting the niche salt business in the area. GOAL also initiated the Livelihood Restoration Support Project that provided rice seeds to farmers. In Akkarapettai, CARE helped people earn money for removing the sand that had filled ponds and plowing the land. Other work involved deepening a pond, laying channels, building steps for people to use, clearing weeds and bushes

and cleaning up water bodies and growing medicinal plants. Some 1,900 families benefited from the work. CARE has also begun work on desalinating and purifying the water in two ponds.

Exnora has launched a recycling program with USAID funds. The group used its considerable expertise in waste management to compost all the waste in Nagapattinam town and a few nearby

villages, aiming to make them garbage-free. Exnora bought and distributed 15 tricycles and 1,100 bins to garbage collectors to go door to door and pick up the trash. Each household is asked to separate the wet or organic waste and dump it in a green bucket. The inorganic matter, usually dry, is put in a red bucket and can be sold as scrap. R. Subbarayan, president of Palaiya Palaiyam, a 1,200-family village in Nagapattinam district, welcomed the Exnora initiative. To make the effort a success he arranged several workshops for the villagers, especially women, to educate them about both the uses and hazards of kitchen waste. Children are also taught about environmental issues.

In Vedaranyam, salt water had flooded the fields and ruined them. GOAL, in partnership with HelpAge India and the Bharathi Women Development Centre, helped desalinate the farms. The group said it helped remove sand from 122 hectares of land at a cost of Rs. 3,000 per hectare as of September. The soil was then tested for salinity at the Tamil Nadu Agricultural University laboratory in Coimbatore, which gave an optimistic report to the farmers that the land is now arable, and farmers have grown rice.

One such farmer is Bhagavathammal, 72, a resident of Kameshwaram village, about one kilometer from Vedaranyam. She grows the dry variety of rice as she does not have irrigation, and her crop is barely enough to sustain her. “I had lost hope after the tsunami, wondering how to make my small piece of land cultivable,” she says. “With help from NGOs and support from the government, I can now think about cultivating the land this season.”

The natural catastrophe has strengthened the will of people and communities to organize local initiatives in the ravaged east coast. Still, at the one-year anniversary of the disaster, as many as 100,000 Indians remain displaced and living in temporary shelters. Recovery work continues. Americans and Indians are working together to keep temporary communities healthy and decent, teach people how to prepare for future hazards, and share how cities with similar experiences have coped, rebuilt and thrived again. □

# The Pacific Tsunami WARNINGCenter

By CHERYL PELLERIN

Since the Indian Ocean tsunami last December, the affected countries are networking with the warning center in Hawaii.

While tsunami-affected nations of the Indian Ocean region are working to create their own early warning systems for a range of natural and other hazards, the U.S. Pacific Tsunami Warning Center in Hawaii is providing interim coverage for that and other regions against the threat of tsunamis.

The warning center, part of the National Oceanic and Atmospheric Administration's (NOAA's) National Weather Service, is a one-story building of painted white concrete blocks situated in Ewa Beach near Honolulu. It sits a few blocks from the Pacific Ocean, on the edge of the community's tsunami evacuation zone, a map of which is printed in every phone book.

Until a few years ago, the compound was responsible for the Pacific Basin as a regional and long-distance tsunami warning center and, for Hawaii, as a local tsunami warning center, says Director Charles "Chip" McCreery.

"In the aftermath of the Indian Ocean event, we're serving as an interim warning center until a system can be put in place in the region," McCreery says. "We're doing this in cooperation with the Japan Meteorological Agency, which is issuing bulletins for [tsunami-related] events in the Indian Ocean region."

The center is responsible for watching a large portion of the globe, but the staff is small. It includes McCreery, an administrative assistant, three geophysicists, one oceanographer and two electronics technicians. "We always have two people on duty 24 hours a day, seven days a week," McCreery says, "but we're not in the center 24 hours a day seven days a week." They live in houses on the grounds of the center and each carries two pagers. When an event occurs, it sets off the pagers of the two on-duty staff members, who go to the center to analyze the event.

"As a result of the Indian Ocean tsunami," McCreery says, "our program is being expanded. In the future we will have people in the office ready to respond 24 hours a day, seven days a week. It will allow us to be somewhat quicker [responding to] local events and maybe a little bit quicker on distant events."

Seismic data reach the center from 180 seismic stations around the world. Most are from cooperative seismic networks like the 130-station Global Seismographic Network operated by the U.S. Geological Survey and the National Science Foundation, and various regional networks. The center's computers continually monitor the data streams for an earthquake. If they find one, they determine an initial location and sometimes a magnitude.

The staff constantly collects and analyzes such seismic data to detect and characterize earthquakes. When any large earthquake is spotted, staff members begin monitoring sea level data from near the earthquake epicenter to detect and measure potential tsunami waves. "Based on all that information, including numerical forecast modeling methods that we develop and use, we have a decision-making process about whether to continue a tsunami warning, cancel it or upgrade it," McCreery says.

Most importantly, the center disseminates the information to those who need it. "Over the last 10 years or so, the time it takes us to get our initial



David Burwell, an oceanographer at the Pacific Tsunami Warning Center in Hawaii, points to the area devastated as a result of an earthquake near Sumatra, Indonesia.

bulletin out has dropped from in some cases over an hour to now about 10 to 20 minutes for distant events," McCreery says. "For local events, it took us up to half an hour in 1997. We now get our initial bulletins out generally within two to four minutes for a local event."

The center has been operational since 1949, originally as the Seismic Sea Wave Warning Center. "We had a very bad tsunami in Hawaii in 1946, with 159 casualties," McCreery says. "There was no warning system in place at that time and the event happened on April 1, April Fool's Day, and people tend to do a lot of practical jokes. So the tsunami warning in some cases was ignored because people thought it was an April Fool's joke. Because of that tragedy," he says, the United States formed the warning center.

A 1960 earthquake in Chile set off a tsunami that affected most Pacific Basin countries. "We had 61 casualties in Hawaii from that event and there were nearly 200 casualties in Japan, which is completely across the Pacific. It took 22 hours to get to Japan," says McCreery. After that disaster, 10 countries formed a tsunami warning system in the Pacific and the United States volunteered the Hawaii center as an operational control point. A sister center—the West Coast and Alaska Tsunami Warning Center in Palmer, Alaska—was established in 1969, after a 1964 tsunami from an Alaska earthquake.

"That's been the pattern," he adds. "After a disaster, some incremental progress is made in mitigating tsunamis." □

**About the Author:** Cheryl Pellerin is a correspondent for Washington File, a product of the Bureau of International Information Programs, U.S. Department of State.